

REMARKS

In the non-final Office Action mailed December 19, 2006, claims 1-29 were rejected under 35 U.S.C. §101 as being directed to unpatentable subject matter and under §103(a) as being unpatentable over Milillo et al. in view of Asselin et al. and Taylor. In the present Response, paragraph 1 of the Specification has been amended to update information about cross-referenced applications.

The undersigned believes that the new rejection under §101 should have been made, if at all, in the first Office Action. 37 C.F.R. §1.104(a) states that “[t]he examination shall be *complete* with respect both to compliance of the application ... with the applicable statutes and rules...” while subsection (b) states that “[t]he examiner’s action will be complete as to *all* matters ...” (emphasis added). The first Office Action should have been “complete as to all matters” and, consequently, it was improper to raise the new grounds in the subsequent Office Action, even if not final, and the rejection should be withdrawn.

Similarly, the undersigned also believes that the Taylor reference should have been cited, if at all, in the first Office Action. Again, 37 C.F.R. §104 requires a complete examination while MPEP 706.02 (I) requires that “[p]rior art rejections should ordinarily be confined strictly to the *best available art*” (emphasis added). The Applicant’s Response to the first Office Action, in which the §103 rejection was traversed, was persuasive to the Examiner and successfully overcame the rejection because a new and different combination of references was cited in support of the §103 rejection in the instant Office Action. No claim amendments were made in the prior Response and nothing in the Response should have provided grounds for the new prior art search which the Examiner apparently conducted. Thus, the rejection in the first Office Action was not based on “the best available art” and the rejection in the current Office Action should be withdrawn.

Turning to the merits of the rejections, the undersigned is puzzled about the stated grounds for the §101 rejection. The Office Action cites MPEP 2106 (IV)(C)(2)(B)(2)(a) and (b) which sets forth the PTO’s official interpretation of the §101 “utility” requirement. The Office Action then states on page 3 that the independent

claims "... lack the necessary physical articles or objects to constitute a machine or a manufacture within the meaning of 35 USC 101. They are clearly not a series of steps or acts to be a process As such, they fail to fall within a statutory category."

The sections of the MPEP which were cited and quoted pertain to utility and a determination of whether a claimed invention covers a practical application of one of the §101 judicial exceptions if it does not fall within one of the enumerated statutory categories. If a claimed invention does not fall within one of the enumerated statutory categories because the claims are directed to mere abstract ideas, natural phenomena or laws of nature, it might still be patentable if the claims are directed to "methods and products employing abstract ideas, natural phenomena, and laws of nature to perform a real-world function ..." MPEP 2106 (IV)(C). The balance of subsection (C) is intended provide guidance to the Examiner in making a determination whether the claimed invention falls within one of the judicial exceptions and, if so, whether it is a practical application thereof.

The Office Action makes the assertion that the invention claimed in the present application fails to fall within one of the statutory categories but provides no reason for such assertion. Moreover, even if, for the sake of argument, such assertion is correct, the Office Action fails to conduct the follow-up determination required by the MPEP. MPEP 2106 is merely quoted and a conclusory statement made. The implication is that the claimed invention does not provide a practical application that produces a useful, concrete and tangible result but support has been provided. Without specifics, it is difficult for the Applicant to rebut the rejection. For these reasons alone, the rejection should be withdrawn.

Nonetheless, an attempt will be made to address the §101 rejection and the Applicant vigorously rejects the characterization of the claims as being non-statutory. Claim 1 is a method claim ("A method for protecting consistency groups during a data storage backup operation ...") which indeed sets forth "a series of steps or acts" and is, therefore, a process. Claims 9 and 14 are system claims ("A system for protecting consistency groups during a data storage backup operation ..." and "A data storage system ... ") which recite physical articles and constitute machines. And, claim 22 is a computer program product claim ("A computer program product of a computer readable

medium usable with a programmable computer, the computer program product having computer-readable code embodied therein for protecting consistency groups during a data storage backup operation, the computer-readable code comprising instructions ...") and recites a series of instructions which may be executed. Such a claim has been an accepted form since the Beauregard case. The dependent claims have the same form as their respective parent claims. All of the claims are, therefore, within the enumerated §101 categories of patentable subject matter and the Applicant requests that the rejection be withdrawn.

The Applicant also requests that the rejection under §103 be withdrawn. Per claim 1, the claimed invention protects consistency groups during a data storage backup in a peer-to-peer remote copy (PPRC) environment and improves upon pre-invention FlashCopy capability. When, as is frequently the case, a consistency group is distributed over many storage volumes (see, for example, FIG. 2 of the present Application and the corresponding text), the FlashCopy commands to the source volumes do not execute simultaneously and what was a consistency group on the FlashCopy target volumes may become inconsistent. As long as no write request is received by a FlashCopy source volume, reversion to the prior consistency group, which remains in the source volumes, is still possible. However, if the source volumes become inconsistent while the target volumes are also inconsistent, reversion to the prior consistency group is no longer possible. A risk of data loss exists, therefore, if the FlashCopy operation for less than all of the volumes is unsuccessful.

It is this risk towards which the claimed invention is directed and is a different problem than those addressed by the references cited in the Office Action. In accordance with the claimed invention, data forming a consistency group is transferred from primary volumes to FlashCopy source volumes on a secondary unit. Although the invention of Milillo is also implemented in a PPRC environment, that environment does not include a FlashCopy or comparable function. Rather, Milillo only addresses issues which may occur when data is copied from a primary volume to a secondary volume: there is no mention of further transfers to FlashCopy target volumes or problems associated with such transfers. Consequently, because Milillo does not even mention

FlashCopy or a comparable function, it cannot (and does not) disclose or suggest transferring primary PPRC volumes to FlashCopy source volumes.

Further in the claimed invention, an attempt is made to prepare each source volume for the FlashCopy operation. Preparation of a volume includes write-inhibiting the volume and, as recited in dependent claim 4, may include generating an Establish-FlashCopy-reversible command. Thus, preparation of all FlashCopy source volumes must be successful in order for the FlashCopy operation to proceed. Although Asselin is cited as teaching this limitation, Asselin is actually directed to a different storage function, "concurrent copy," not FlashCopy, and does not disclose or suggest write-inhibiting all source volumes in a consistency group. In fact, to the best of the undersigned's knowledge, Asselin does not mention consistency groups at all. Consequently, Asselin cannot (and does not) disclose or suggest the claimed preparation step.

Next, if the preparation of all FlashCopy source volumes is successful, the FlashCopy operation is committed and the prior consistency group in the FlashCopy target volumes is replaced. On the other hand, if the preparation of any FlashCopy source volume is unsuccessful, the FlashCopy operation is reverted to maintain the prior consistency group in the FlashCopy target volumes. Like Milillo, Taylor also is not concerned with, and fails to mention, the FlashCopy function. Rather, the cited paragraph 40 of Taylor addresses database accessibility, not maintaining or replacing consistency groups. Taylor should not, therefore, be cited in support of the claimed invention.

In none of the cited references are multiple volumes the focus of any attention, though multiple volumes may be accommodated. Thus, in none of the cited references is the problem solved by the present invention addressed. In particular, in none of the cited references is there any discussion of the significant risk of data loss that may occur when the FlashCopy preparation is unsuccessful in at least one but not all of the source volumes nor is there any discussion of a solution to that problem, much less a discussion of the solution claimed in the present invention.

Consequently, not only are not all of the elements of the claimed invention present in the cited combination of references, but the problems addressed by the cited

references are different from the problem solved by the claimed invention and there can be no motivation to combine the references. Nor is there any suggestion in any of the references to combine. Moreover, even if such a combination was made, it would not result in the claimed invention or provide its benefits. Therefore, no combination of the cited references renders the claimed invention obvious and the Applicant respectfully requests that the §103 rejection be withdrawn.

As substantially the same grounds for rejection were asserted against all of the independent claims, the foregoing comments apply equally to those claims.

The Applicant also respectfully asserts that the dependent claims are not obvious in view of the remarks made above with respect to the independent claims and are further allowable based on the allowability of the respective independent claims.

For the foregoing reasons, the claims are believed to be allowable, the Application is believed to be in condition for allowance and a favorable Office Action is requested. The Examiner is encouraged to contact the undersigned by telephone if a conversation would expedite prosecution of this case.

This constitutes a request for any needed extension of time. No fee is believed to be due in this instance. The undersigned hereby authorizes the charge of any deficiency of fees submitted herewith, or the credit of any overpayment, to deposit account number 09-0449.

Respectfully Submitted,



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